APRIL 1959 2s. 3d.

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THINKING IN THE FIRST PERSON PLURAL 20

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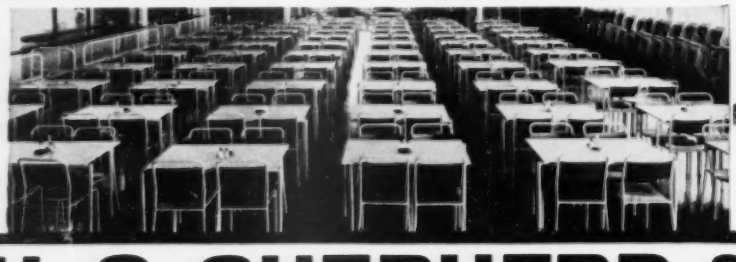

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Personnel Management and Methods

WELFARE · SAFETY · HEALTH · CATERING · EFFICIENCY

APRIL, 1959

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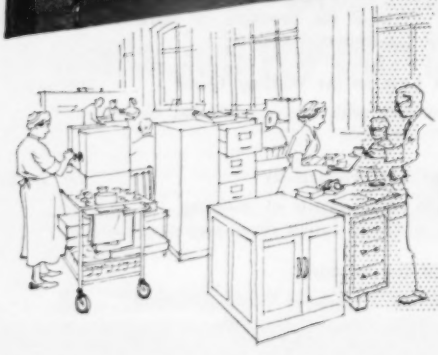

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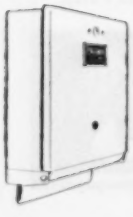

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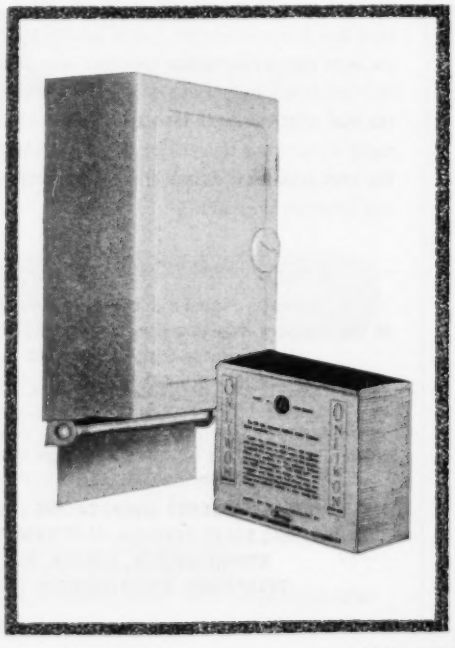

NEWS NAMES NOTES

Schoolboys into Managers

CHANGING SKILLS and knowledge required by those responsible for planning and directing production have stimulated Brunel College of Technology to embark upon a new type of training for those — especially grammar and public school leavers — who wish to enter factory management.

The first course starts on September 28 and intends to give training that will be suitable for engineers whatever industry they enter. It is a four-year, full-time production technology "sandwich" course leading to the Diploma in Technology (Engineering).

Applicants should be between the ages of 18 and 20. They should possess GCE Advanced Level in mathematics and at least one (preferably two) sciences, with Ordinary Level passes in two other subjects and English. Consideration will be given to those boys who have gained an outstandingly good result in an Ordinary National Certificate or Diploma. Fees are £17 for students normally resident in the County of Middlesex. Full details regarding syllabus, bursaries, etc., are obtainable from the Brunel College at Woodlands Avenue, Acton, London, W.3.

Gala Performance

IN TEN YEARS the Central Office of Information has acquired the rights to distribute 1,500 films made for their own purposes by industrial and other sponsors. To mark the acquisition of the latest film, a special showing was given last month to an invited audience which saw examples of the films to be borrowed: "Steel Rhythm"—the story of how the skills of the British steel worker have been adapted to new machinery and techniques; "Variety Reduction"—a film for industrial training and productivity education; "From Glasgow to Bendigo"—a colour film showing how some of the world's finest carpets are designed and made in Britain. These examples, plus others in this comprehensive collection, are, or will shortly become, obtainable by application to the Central Film Library, Government Building, Bromyard Ave., London, W.3.

Law of the Letter

SELF-DISCIPLINE, office organisation, good manners, clear thinking, is what A. D. Brice teaches in a new handbook designed for those who have to dictate—either to a shorthand notebook or to a dictaphone. "Writing Out Loud", published by the Dictaphone Co. Ltd., discusses some of the common faults of people who use their machines. The ten chapters are headed with office maxims which the author lists as the Dictator's Commandments. Examples: Everything you write should reflect your individuality, communicate your thoughts. Most letters deserve

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NEWS NAMES NOTES

answers. Don't put off till later what can be done *now*. Covet time—for its proper use brings accomplishment. The booklet is available on written application from the company at 17-19 Stratford Place, London, W.1.

Agreement over Disputes

SOME FORM OF COMPULSORY ARBITRATION is being planned to replace the Industrial Disputes Tribunal which was recently disbanded. In reply to a Parliamentary question, the Minister of Labour announced that he hoped to move a clause to this effect in the Committee stage of the Wages Councils (Amendment) Bill. Representatives of industry had revealed a "large measure of agreement" on the need for such a system, he added.

Streamlined Study

TRAINING FOR SMALL FIRMS in time and motion study has been given in the past nine months to over 1,200 students at the School of Time & Motion Study, 29 Cork St., Piccadilly, London, W.1. The course is not aimed at producing competent work study engineers, but at enabling management to streamline its organisation, and particularly to teach the principles of work study to supervisors. Basic subjects are: incentives, motion study, method study, plant layout and human relations.

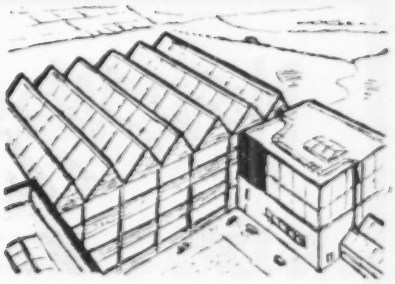
PICTURES OF INDUSTRY—Just over 100 films will be shown at the second festival of Films in the Service of Industry, Harrogate. They were chosen from 260 entries in nine categories, including: public relations, education and training, health and safety, productivity and efficiency and human relations and welfare.

MOTHERS OF INVENTION—Women employees submitted more than one-third of the 439 successful suggestions accepted last year by the Bournville works of Cadbury Brothers Ltd., Birmingham.

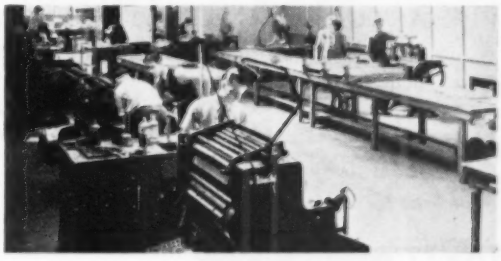
FINANCE FOR ALL—To tell employees how the firm fared last year, Stewarts and Lloyds Ltd. slipped an abridged version of the company report and accounts into a recent issue of their house journal, "The Review News".

BE PREPARED—Civil defence and fire precautions which should be taken by industry and commerce in wartime, plus the preparations that they should make in peace, are the subject of Civil Defence Bulletin No. 3 (HMSO, 1s.).

CAREER GIRLS—Teachers and parents should encourage girls leaving school to train for really worthwhile jobs,



INDUSTRIAL CLEANING



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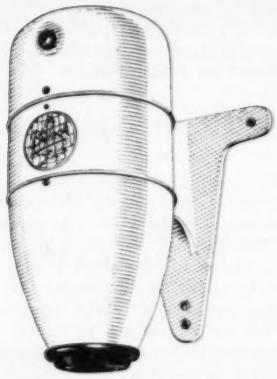

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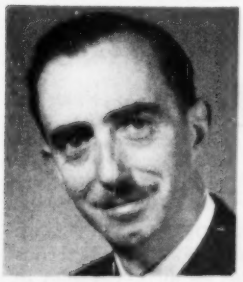
NEWS NAMES NOTES

said Mrs. M. Thompson, past president of the Business and Professional Women's Clubs. Although many girls might marry early, she added, they should take a long-term view, and learn a job they could return to after their children had grown up.

BUMPER BUNDLE—Six more revised editions of booklets in the Central Youth Employment Executive series on careers for young people: Wall & Floor Tiler—7, Plumber—17, Printing—45, Occupational Therapist—53, Accountant—59 and Engineering work for Boys—78. All available from HMSO.

Mr. M. R. Bonavia has been appointed Director of Studies at the British Transport Commission's staff college, Woking.

Mr. D. A. Dawson, personnel manager of A. C. Nielsen Co. Ltd., has been appointed as an associate director of the company. He was first appointed personnel manager in 1954, prior to which he had been field auditor, tabulating department manager, and production manager.



Left, Mr. D. Dawson, associate director, A. C. Nielsen Co. Ltd.; right, Miss P. Gemson, employment and welfare officer, Spirella Company.

The Spirella Company of Great Britain recently announced the appointment of **Miss P. Gemson** to the post of employment and welfare manager.

A new staff administration group has been set up within the personnel and welfare department of Vauxhall Motors Ltd. **Mr. C. D. Graves-Morris** is appointed manager, staff administration, **Mr. L. M. McClure**—salary administration supervisor, **Mr. E. B. Fairman**—supervisor employee benefit programme planning, **Mr. E. M. Quinn**—manpower planning, and **Mr. T. J. Austin**—labour statistics.

Mr. J. Mcneil, who was recently appointed personnel officer of the Crawley factory of Vitamins Ltd., has now been delegated to carry out personnel management functions at the Hammersmith, Chester and Keynsham Mills on behalf of the personnel manager, Vitamins Ltd.

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POINT COUNTER POINT

Sky's the Limit

UP, up, up go Britain's industrial buildings. Over 300,000,000 sq. ft. of them since the war — representing a building investment alone of well over £500,000,000. Soon they may be climbing upwards in a far more literal sense. The merits — and disadvantages — of multi-storey factories are discussed at length in a recent report by the Factory Building Research Committee of the Department of Scientific and Industrial Research (HMSO, 2s. 6d.). It is the first in a projected series of investigations — originally sparked off by the Midland Board Regional for Industry in 1955 — into the planning, design, performance and cost of factory building.

Management generally will study this report for facts about planning and production. What is the truth about tall storeys, as it affects the work of the personnel manager? Accepted standards of working environment are going to give multi-storey designers some new problems, and the author, architect W. A. Allen, has listed the outstanding ones.

Gone, for instance, will be the simple expedient of lighting the factory from roof windows; even side windows will prove inadequate for large areas of working space. The answer lies in improved methods of artificial lighting, resembling daylight; this, as Mr. Allen says, at present means one of the fluorescent types. He goes on to demand "recognition by management that if daylight is not to be provided, the artificial light must be unusually well done".

Noise will present more than one kind of headache in this type of factory. Concrete floors above and below the production area will vibrate and reflect noise, and employers will have to give a lot of thought to sound absorbent materials and resilient mountings for machines — not only for their employees' sake, but that of the people living nearby.

Then there are the added problems of ventilation (which can, of course, be partially solved by an efficient system of large-scale, fresh-air heating) and fire prevention. Fire experts recommend sub-division of production areas — troublesome but effective — and at first glance the multi-storey factory seems to offer a ready-made solution. But, the report warns, "this may prove illusory in view of the demands for perforation of floors for vertical production links, through which both smoke and fire can pass".

Industrialists pay the bill; it is up to them to make the choice. But there is one planning problem which they should not overlook; the report hasn't. Where are employees going to park their cars? Yes, *employees:* a small-scale survey has shown that an average of one in ten workers drives a car to work. In some cases the ratio is one in three, and the numbers are growing. Boomtime for British industry. If the Chancellor's forecasts are correct, the sky's the limit.

Home Grown

SCOTTISH electrical engineering companies are out to breed their own executives—and to stem the southward flow of potential manager material. A successful training scheme —the first of its kind in the world— has been put into operation by a group of Scottish firms. Known as the Scottish Electrical Training Scheme (SETS), it was founded to correct the scarcity of university and college graduates available to the Scottish electrical engineering industry.

The late William Fraser of Scottish Cables Ltd. realised that this position could be cured by co-operation within the industry and by providing adequate encouragement to graduates to remain in Scotland. So he called a meeting of leading electrical and educational executives in early 1956, and put the outline of SETS to them.

They accepted his lead enthusiastically and formed a company. Founder members: Belmos Co. Ltd., Bruce Peebles & Co. Ltd., the Harland Engineering Co. Ltd., Honeywell Controls Ltd., the North of Scotland Hydro Electric Board, Scottish Cables Ltd. and the South of Scotland Board.

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Factory Equipment Exhibition

including HEATING, VENTILATION and INSULATION

Earls Court
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SETS has been designed to offer maximum scope and choice, whatever the direction of the graduates' interest. Within this group of firms, facilities are provided for training in every possible aspect of the electrical industry.

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The work is not confined to graduates—although they are the main target; the scheme also takes secondary school boys. Visits to firms are arranged to interest the right type of boy in an electrical engineering career.

Results: It is estimated that the scheme will require perhaps five years to prove itself. So far two years have been completed, and a preliminary report gives this picture:

During 1958, there were 15 graduates following a two-year practical training course with a view to becoming chartered electrical engineers. One hundred undergraduates undertook Long Vacation training and these will move into the full scheme in due course. Another twenty students, between school and college age, were given preliminary training. All except three were Scots; and one of these was a graduate from Cambridge attracted to Scotland by the scheme.

The view taken in Scotland is that each graduate is a potential managing director and that, therefore, he should be encouraged to think in terms of managerial as well as electrical problems.

Recent gatherings have sat down to two specific projects: one managerial; the other technical. By this means it is hoped to produce executives who are fully capable of meeting the problems of the industry.

Sister J. Martyn talks to an employee in the Ross Group's new medical centre—part of a recent programme for co-ordinating personnel activities. Another health feature: a new sickness/accident scheme to protect all employees in the group.

Age Means Ability

LIFE begins at forty, we are told. But this is small comfort for the 40-year-old applicant who is turned down—"because he is too old". Two years ago (Ability—not Age, PM & M, December, 1956) we described American legislation moves which forbade employers to state arbitrary age limits in their advertisements for job vacancies. Appeals were made to employers "to give the older worker an even break. . . .". Latest developments, reported in *Factory*, the U.S. journal for better production management, is that "at least one company practices what the fact finders have been preaching".

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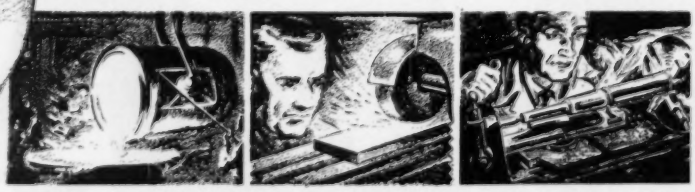

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POINT COUNTER POINT

in hiring men over 40. The company has decided they make more permanent employees, require less supervision, and have lived long enough to know that everyone must work hard to make a living. Makes sense, doesn't it? No doubt you'll agree it does. But are you hiring older workers yourself?"

Personal Approach

"Chest O.K? Nasal passages, nerves good? How about eyesight and digestion? Get enough sleep?

STRANGE questions to hear early in the morning amid the plush serenity of a London hotel. And there were more to follow. "Do you bathe or have a rub down every morning? Are the pores of your skin clean? Do you clean your teeth every morning? Are your habits regular"?

I looked at the attentive group of listeners; surely someone would murmur "mind your own business". But nobody did. The reason? They were salesmen stepping out on the first leg of a three-day refresher course in sales techniques. The questioner was Mr. H. Metcalfe, managing director of the National School of Salesmanship — and this was his business. His aim: to encourage salesmen to translate their good habits into better business for their firms.

"There's no pseudo-medical stuff about this," he declared, "it's pure commonsense". The sort of commonsense in fact, that Mr. Metcalfe and the rest of the school's tutors and lecturers have learned in a lifetime of selling.

The refresher course had been tailor-made for the men who sell private telephone installations all over the country for Siemens Edison Swan Ltd. The programme was planned after the school's representatives had accompanied the salesmen on their round of calls, making notes for future comment and advice. Even before the course was launched the school had devised new-style sales literature specially for Siemens' use.

Subjects covered by the course included planning the use of time and the sales approach, building and delivering sales talk, closing the sale, handling complaints and countering competition. There was even a session of voice training: "Not elocution", insisted the tutor, "we just take care of the consonants and the vowels take care of themselves".

The school has been running these tailor-made sales training courses for several years, and for all kinds of industries and retail trades, using practical study, role-playing and discussion techniques. Over the years they have built up a library of their own films, plus others from the United States, and their film training course now covers the country.

Headquarters is at National House, Manchester, 2. "What Manchester does today", said Mr. Metcalfe slyly, "London does tomorrow". Again I was disappointed: none of the southern contingent batted an eyelid.

Power of the Press

BIRTHDAY greetings to the British Association of Industrial Editors — the men who produce our house journals, who help to keep employees informed of what management is doing, and who don't often get the credit they deserve for a fine job of industrial relations. The association was 10 years old last month and ,to mark the anniversary, BAIE national chairman, Kenneth Showler triggered off a big new recruiting drive with a personal letter to every member. For ammunition he gave them a birthday brochure called "Is there a Journal in the House?"

Not yet in every house, but the movement is growing. According to a BAIE survey, Britain boasts about 1,500 house magazines ranging from duplicated newsletters to prosperous, publicity-conscious "glossies". Circulation is about 13,000,000 and an estimated 30,000,000 million people—relatives, friends—read them. Employers spend £10,500,000 million on them every year, and nearly three-quarters of them are issued free.

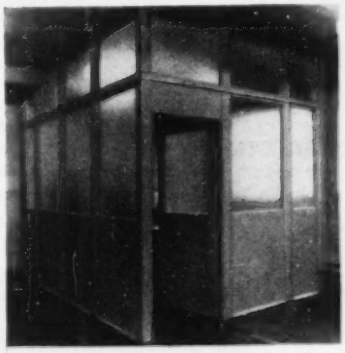
The association is in the forefront of this vigorous development, stimulating discussion and ideas on a national, European and international level, and pushing up the standard of house magazines.

This Month's Cover

Portrait of men at work. These two are welders but whatever business your employees are in, whatever jobs they do, their safety and well being are your concern. If you are looking for up-to-date methods of making their job and yours more efficient, you will probably be visiting this month's Factory Equipment Exhibition, Earls Court, London, April 7 to 17. This year's display is more comprehensive than ever. Starting page 23 is a review of some of the exhibits which will catch the personnel manager's eye.

* * *

We omitted to mention last month that our cover picture (Yesterday's Officers Build a New Career) was published by courtesy of Soldier Magazine.



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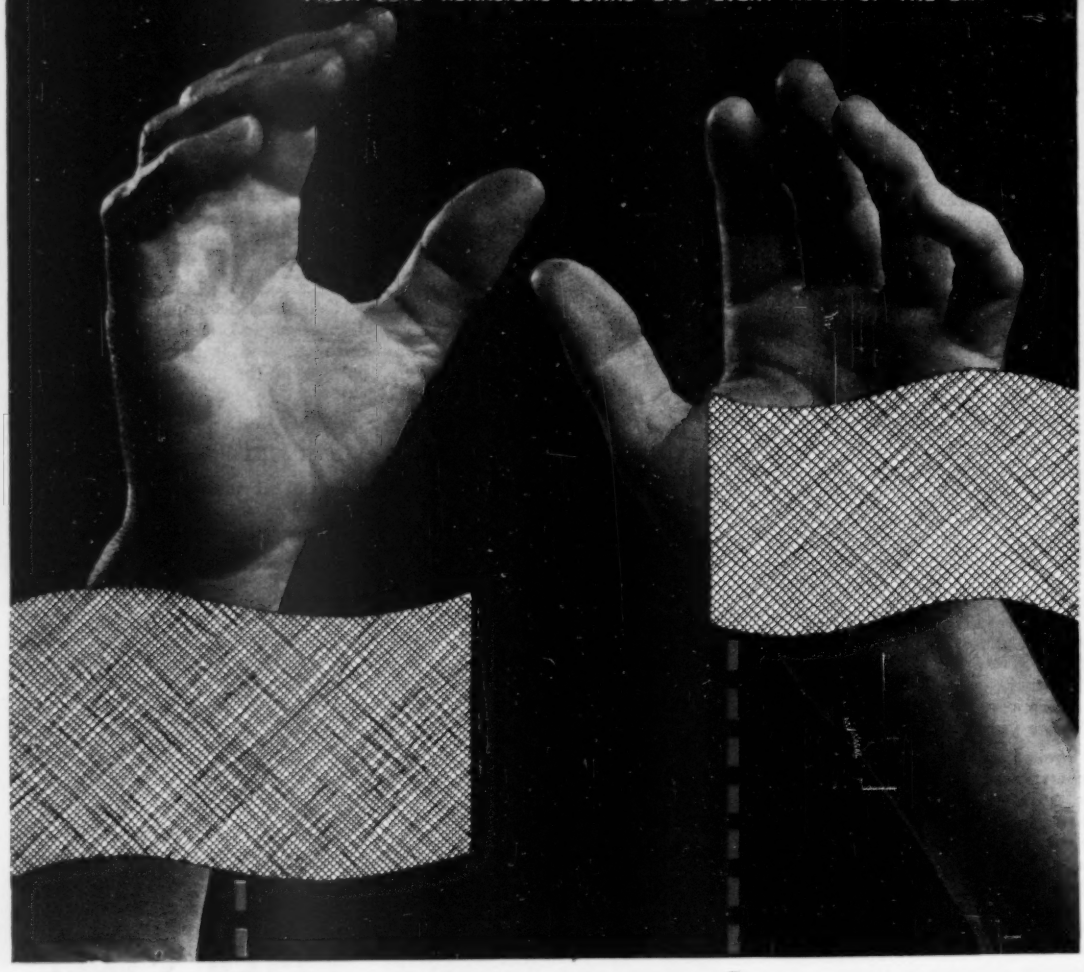

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Schools for expanding personalities

by Alec M. Hughes

Residential training colleges for management, with the accent on 'residential' In a two-part appraisal the author assesses their value to the manager and the company that employs him

SHORT residential courses are a familiar feature of management training today, and it is easy to forget that this essentially English creation is almost entirely a product of the post-war years. Of course, the idea of residential education for adults is far from new. It began in Denmark in the early nineteenth century, with the growth of the Folk High Schools, and was adapted to English conditions with the founding of Ruskin College in 1899. Following this, several other adult residential colleges were established in England, Wales, and Scotland, primarily to provide advanced study for working class students.

But the value of residential adult education was recognised to go beyond the provision of academic study for the educationally under-privileged. Sir Richard Livingstone wrote in 1941 (*The Future in Education*): "Without an extended system of adult education we cannot have an educated nation, and those who receive a secondary education, graduates included, need an opportunity for serious methodical study in later years, when they have had experience of life".

To meet this need he suggested the establishment of adult residential colleges, which, by providing short courses, would fit better into the pattern of our highly industrialised economy than would the existing colleges which required that a student gave up his work for a year or two.

It is an interesting tribute to this viewpoint that, as the Danish economy becomes more industrialised, the Danes are themselves copying the idea of the short-term adult residential course.

When Sir Richard wrote, two such colleges had already been established—Ashridge (1929) and the Lamb Guildhouse (1938). Holly Royde (1944) succeeded the latter, and in the next four years sixteen more short-term colleges were established in England. Today there are twenty-three such colleges in England, while Newbattle Abbey in Scotland combines the functions of both long- and short-term college. The colleges are run by local education authorities, universities, and adult education bodies, sometimes singly, sometimes in co-operation.

The courses they offer cover a phenomenal diversity of subjects to suit industry's needs—the human factor in industry, communication and consultation, young entrants in industry, supervisory management, liberal studies and supervisory management, women at work, the personnel function of middle management, the nature of management, the practice of administration, and so on.

But, though these colleges cater for residential management education, they do not hold a monopoly of this kind of training. Since the war other colleges have been established which are specially devoted to management training—such as the Administrative Staff College at Henley-on-Thames, catering for senior management, or more recently (1955) Sundridge Park Management Centre at Bromley, which provides specialist courses on subjects such as sales management, works management, and measurement for management.

Soon to join the ranks of such specialist centres is Ashridge, the first short-term adult residential college. It was closed recently, but is now to reopen as a specialist management training centre, with Norman Rimmer, late of the British Institute of Management and the Northern Ireland Institute of Management, as director of studies. Since he is to be assisted by another former staff member of BIM it seems likely that Ashridge, whose plans have yet to be published, will reflect in its programme some of the ideas of management training developed by the BIM in their executive training courses.

Individual industries and firms have also entered this sphere of training to institute a third type of college which provides internal training in residential surroundings. The iron and steel industry has Ashorne Hill, to which individual companies send members of their staff. Warren House has been established since May, 1955 as the staff training centre of Imperial Chemical Industries Ltd. This Victorian residence might almost have been designed as a college.

One also finds a wide variety of educational and professional bodies organising residential courses either at conference centres or in hotels. The Institute of Personnel Management, the British Association for Commercial and Industrial Education, and the Industrial Welfare Society each organise their own residential courses, and occasionally co-operate in arranging courses jointly for their members. Technical colleges and universities also provide courses, usually on specialised aspects of management training—examples: The personnel function in hotel and restaurant management, materials handling, work study and the design of industrial experiments.

Is it Worth it? Residential management training today presents a very complex pattern. How valuable is it to the employer? Undoubtedly the chief value of such courses lies in that word "residential". It provides the student with an opportunity to come to grips with his subject in congenial surroundings, far away from the distractions of daily working life; to mix informally with tutors and fellow students; to maintain the thread of thought and discussion which is so easily broken by weekly attendance at evening classes.

As the first warden of Grantley Hall, D. M. Hopkinson, once said, residential courses give the student a chance "to expand his personality as an individual and a social being".

How well the student appreciates this we shall see in a second article. Certainly it is true that the opportunity for sustained thinking and discussion about important problems is a rare one in our hurried mass society.

All residential courses enjoy this advantage, but the colleges and residential centres which are specially equipped for the job are superior to, say, the hotel that is used only occasionally for educational purposes. The reasons? Because students are in residence only for a short period; because, as we shall see, the student (at whatever level in management) so often arrives prejudiced against the idea of formal education; and because the lecturer needs the atmosphere of "permanency" in order to present new concepts and complex ideas in a stimulating way. The specially equipped centre is obviously at an advantage here—with well-equipped lecture rooms, suitable visual aids, the correct conditions for their use, special library facilities and, not least important, a domestic economy geared to the needs of the course.

This is not to say that the residential college run by a firm for its own employees is necessarily the same as a college organised by an outside body. Each has its advantages. A firm can provide, at its own college, courses exactly suited to its needs. It can draw

An ICI management course in action at Warren House, the company's residential training centre. Case study syndicates present their reports in the conference room. ICI started staff training here in May, 1955.

Time for tea and informal discussion on a supervisors' course run by the Ford Motor Co Ltd. at Ashridge College.

on the resources of its managerial and technical staff, and has ready access to plant and equipment when required. At certain stages of training this may well be the best type of residential education to provide.

Pool of Experience. But the firm which sends its employees to an outside course is not only giving them the advantage of training in a particular field of management and the opportunity to mix informally with each other. (And this can be a very important factor in a large organisation where executives are in daily touch with each other by letter or phone; yet they may meet for the very first time on a course.) There is another vital advantage: the opportunity to mix with people from other organisations, to compare methods and pool experience. Here, surely, lies the real value of the outside course, when the problems in one plant fall into the perspective of industry as a whole.

Such comparison is not so easily made on the internal course. Moreover, both student and lecturer on an internal course may be reluctant to comment as frankly as they would among colleagues and lecturers from other organisations. The course offers a narrower field for selection of lecturers, too. It is difficult on an internal course to seek the services of other than the head of a specialist department when discussing the work of that department. But is he always the best lecturer, the most persuasive advocate, the unprejudiced observer?

Best of Both Worlds. It must not be thought, however, that it is simply a choice between internal and external training. Frequently the biggest supporters of residential courses organised by outside bodies are firms which themselves have the most elaborate arrangements for internal training. Such firms often get the best of both worlds—integrating internal and external courses into a pattern which gives the employee not only a detailed picture of the work and policy of his own firm but a real yardstick with which to compare its practices with those of other organisations. Such an employee is the better for it: broader in outlook, more aware of the problems, more knowledgeable about the ways in which they might be solved.

And here, perhaps, lies the greatest danger to management in using available residential education facilities to the full. I recently met a colleague who had been in charge of supervisory training in a large firm. He had, at his own request, been transferred back to production. "Frankly", he complained, "I was beating my head against a brick wall. This firm not only had its own residential centre but it supported outside courses too. Now all that has gone. And the reason? Well it's no use sending chaps on courses to learn all about the best methods of management, and ignoring the fact that they will come back eager to introduce some of those new ideas into their own department. But what happened? As soon as they suggested changes they were fobbed off with some excuse or other. The result was that the more people we sent on courses the more bad feeling and frustration we created at the works. Now we've packed it all in. Was it worth it?"

Was it indeed? No organisation should undertake an extensive programme of management training unless it is prepared to contemplate changes in its own policy and practice as a result of such training. It is often the firm which is most progressive and adaptable in its policy which is also the most convinced of its need for management training. This is just as it should be.

They Call it— Industrial Motivation

It means: teaching employees to think in the first person plural

by Bernard Sluman

WHY work? A simple question; far more simple than the varied answers it receives. Addressing Portsmouth Productivity Committee recently, Dr. R. F. Tredgold, consultant psychiatrist at University College Hospital, London, listed a few of the answers that he has heard.

"Some employees have a pride in the job; some get satisfaction from the regular routine; some enjoy a sense of security . . . and, of course, there's the money. But", he added, "we cannot depend on just the desire for money.

"It is vital for people in industry to discover how their workers' satisfaction can be understood and manipulated. We do not want people going round behaving in a way which is unhealthy to the group, because none of their psychological needs are being satisfied".

One sure symptom of this industrial ill-health is the we/they complex. Volumes have been written about the common interest of management and men. What can be done to get employees thinking solely in the first person plural? Bowyers (Wiltshire Bacon) Ltd. of Trowbridge think they have the answer.

They call it industrial motivation.

Bowyers have been at Trowbridge for over 150 years, and its food products are well-known to housewives in Britain and abroad. As sales have soared, so the factory has had to be expanded. In recent years it has grown to five times its size. Now the company wants to grow in another direction: inwards. Like all progressive firms it is constantly campaigning to increase efficiency and productivity.

But first, they argue, the employee needs a convincing reason for working hard; the same reason, in fact, that keeps management on its toes, the prosperity of the firm. Industrial motivation, says the company's general manager Mr. H. M. Newton-Clare is just another means of communication—"the be all and end all of industrial relations".

For instance, Bowyers' management have decided views about waste in the factory, so they devoted a whole month to sharing those views with every

Posters, like this one by Tannock & James, acquaint workers with some of the factors that influence efficiency, productivity and prosperity.

Shop-floor discussion group learns business principles.

employee in the firm. On the first of the month, the general manager sent a letter to all supervisors. (Not a duplicated circular, but a separate, signed copy which addressed each one by his Christian name.) In it he explained the company's attitude, how wasted materials meant wasted money, how it could be avoided and the advantages which everyone would ultimately reap.

Armed with the facts, the supervisors went on to the shop floor to put the same points over to the workers in their departments. The shop stewards had received the same letter and consequently knew what was happening and what the company hoped to achieve. The supervisors talked to workers in a group, put forward management's arguments, answered their questions and pointed out to them a new poster which had just gone up on the factory walls—one of a series which Bowyers have ordered as visual aids to help supervisors in their instructional talks. "Waste of time, waste of material is a dead loss in hard cash. This cash is needed to expand business and improve conditions". Messages like this caught the worker's eye for the entire month. To keep the subject fresh in everyone's mind, there was a new poster each week; a new slant on the same theme.

The Bowyers campaign is based on a twelve-month programme with a new subject each month. Each one is treated in exactly the same manner—from the initial letter down to the groups of employees listening to the supervisor. The current year's list includes: customer satisfaction, costs, safety, team work, quality, output, regularity and punctuality, competition, suggestion schemes. Everyone a vital topic which, if fully understood by the workers, should add up to a higher and more efficient production.

The subject of suggestion schemes, when it comes up, will mark the beginning of Bowyers' own scheme for encouraging and rewarding bright ideas from the factory floor.

Bowyers have also given a lot of thought to ways in which their employees can share any increased prosperity of the firm. There are many alternatives, including the possibility of some form of co-partnership or even share owning.

In fact, an employee shareholding scheme would be a logical outcome of the business training which this motivation programme provides. Besides instruction on the monthly topics, employees receive special information about the firm's current business—gains, losses, expansion and general progress. These details are contained in a weekly newsletter that the general manager sends to all managers and supervisors. They are expected to pass the facts on to their departments. Certain pieces of information, of course, such as statistics, are asterisked to show that the figures are confidential and must be kept from competitors. But these are the only details which are withheld from employees.

Bowyers believe that an atmosphere of trust between management and employee is bound to give him a greater sense of security. And job security is the main theme of the entire motivation programme. Mr. Newton-Clare admits that this means rather more to his older employees who have experienced the fear of unemployment. But, he claims, even the younger workers are showing a greater understanding, now.

Already there has been a rise in output—between 2 to 3 per cent—in the first three months of the campaign. It is estimated that about 25 per cent of employees are reacting to the scheme.

And the next step? Soon the company plans to introduce work study. Motivation is helping to pave the way, for techniques like that are more readily accepted, Bowyers argue, when the worker appreciates the business sense behind them.

Ultimate success depends upon this initial exercise in human relations. But the one person whose views should be heard seems to have been ignored. That is because there is no personnel manager at Bowyers. Says the general manager: all levels of management in the firm are directly responsible for dealing with human matters in their departments: only then can they do their jobs properly.

Science sets new standards for man management

In Sweden they prefer the hard-headed approach to personnel research

by James Platt

SWEDEN's industrial revolution — for all its coming a little late — was quicker, less painful and considerably more profitable than most. Yet in a country so devoted to the ideals of the welfare state, the study of man in the occupational world and as a production factor, received surprisingly little attention.

But the Swedes' easy assumption of industrial techniques was reflected in their swift mastery of the ways and means of industrial management; today, joint agreements have been reached between the central confederations of labour and management on such matters as safety, vocational training, enterprise councils and time-and-motion studies; and the scientific approach to personnel management is nowhere better exploited than in the Swedish Council for Personnel Administration.

The council, which was established after recommendations from a Swedish Employers' Confederation committee in 1951, has already proved how valuable it can be to industry, the worker and the community, to have the right answers to questions about the psychology, sociology and mental hygiene of the man at work. Moreover, it has given a helpful new perspective to the work of older agencies such as the trade unions, the Salaried Employees' Organisation, and the Institute for Training Supervisors and Industrial Engineers.

But, although the council, under the dynamic leadership of its highly-regarded director, Rolf Lahnhagen, quickly set a new standard of personnel management research, it did not fall into the common Swedish habit of too much research and too little application. For primary consideration was always given to the type of applied research that had immediate practical value. Work such as Allan Hagbergh's two-year investigation into industrial safety problems was quickly put to practical use, and his training course for safety representatives is probably the best now available to Swedish industry. The council does much good work in encouraging young university-trained social scientists, and typical of its wide view are the following examples of research carried out under council grants: problems of the aged in the labour force, noise problems, methods of measuring training results, group formations, a study of the concept of normal performance and breaking-in problems of manual operations.

One of the most interesting results of the council's academic interest was the establishment of a professorship in Social Psychology and Personnel Administration at the Stockholm School of Economics in 1956. Gunnar Westerlund proved an excellent choice as the first professor; his work on several fields of industrial research has become nationally known.

The council's scope embraces not only manufacturing enterprises but also all other organised forms of group activity, including public administration on the national and local level. It includes in its work two important services to industry: a highly-qualified panel of selection consultants which is regularly called into service, and an extensive audio-visual aids department. This department, while it has a formidable collection of films, recordings and other aids, is perhaps most valuable as a *stimulant* to industry and other organisations: in December, film section-head Bengt Magnusson was responsible for organising the first Swedish Conference of Film in the Service of Industry and Trade, attended by over 300 delegates. His department co-operates in the planning or making of films for every side of industry and business.

The council holds regular conferences with other agencies working in the personnel field, and labour and management organisations are sent a steady flow of orientation materials. Council staff members keep up to date on foreign problems and methods by attending study tours and conferences in many countries.

But, despite the scientific bias of much of the council's work, it has a very hard-headed approach to its job. Nothing illustrates this better than the courses organised by it, or run by its staff for the Swedish Employers' Confederation.

Many of these courses are held at Yxtaholm, a beautiful old estate and manor house about seventy miles from Stockholm. The one I attended recently was designed for public relations chiefs from leading industrial and national organisations. The accent, as in most of the council's courses, was on practice rather than theory, and students were put to work the moment they arrived. Course-leader Gunnar Lindwall asked them: "Why have you come here? Do you really know?" and sent them off in groups to discuss their ideas and problems. Their replies not only helped them to clarify their own views, but also gave them an insight into the problems of the other course-members. From this initial understanding Lindwall and his staff were better able to judge how the course should be run.

Group work was the basis of it, though visiting lecturers discussed problems of communication, training, information and ideas-selling; and the use of the latest audio-visual aids was demonstrated. The course reached an enthusiastic climax as each group presented a twenty-minute project: "How to 'sell' this course to your boss when you get back"; "selling Sweden in Denmark"; "selling the idea of a new training programme to your board of directors"; and "raising the status of street-vendors in Stockholm".

All this practical work, however, was brought out against a background of scientific method worked out by Lindwall, head of the council's training section, Dirk Bakker, the council's audio-visual aids expert, and Allan Hagbergh, psychologist. The course was an excellent example of the council's scientific—but very practical—approach to all problems associated with "man at work".

Window Shopping for Up-to-date Ideas

Factory Equipment Exhibition: Survey for Personnel Managers

THE Factory Equipment Exhibition opens at London's Earls Court on April 7. Now in its seventh year, the exhibition has become firmly established as a landmark in the industrial year. A time for management to spring-clean its ideas on working efficiency, to study the latest methods of production, safety, welfare, heating, ventilation, building, cleaning and maintenance.

This year's display will be the most comprehensive yet, and you will have more time to take it all in: 10 days instead of six. It is hoped to offer something to interest every level of management from every type of industry, and on the following pages we give a brief review of some of the exhibits which will be of particular interest to the personnel manager.

In view of the exhibition's size and coverage, it is impossible to mention more than a short selection of equipment. We have picked those which seem to point a certain trend in design and conception. The general picture is one of simplicity in operation, aimed to reduce fatigue and raise the safety standard.

Features worth noting in the fight against fatigue are pads and mats which absorb vibration from heavy machinery, and new acoustic covers to muffle the noise of office machinery. The problem of noise will also be considered at one of the short conferences running concurrently with the exhibition.

There is always something new in the safety field, whether it be machine guards, fire prevention systems or protective clothing and equipment. Safety is a difficult subject to sectionalise—although we have done it in this review; the campaign against accidents is growing so rapidly that all kinds of equipment now incorporate safety features. Readers will find significant examples in other sections.

If this year's summer lives up to its early promise management will be thinking hard about ventilation problems. There will be plenty of ideas to note at the exhibition. On the general subject of welfare, readers will find that overall manufacturers are even more fashion conscious, and the usual mannequin parades are being held.

And fashion is the keynote of the whole exhibition. It is up-to-date industrial thinking which will be on display from April 7 to 17. We shall be there, on stand J.26, to join in the interchange of ideas.

The Chadburn 600 Coca-Cola vending machine.

Safety ... Health ... Hygiene

Safety. "Factex" plastic marking (Constructex Ltd.) has been developed for external use. It is guaranteed for one year, if laid in accordance with the maker's instructions and is claimed to be in good condition even after two years. For internal purposes, the firm is displaying "Constructex" and "Crystalex."

In an attempt to minimise the risk of accidents and operator fatigue, Nuway Manufacturing Co. Ltd. have produced rubber and plastic matting. They claim that Nuway provides comfortable, warm and dry conditions underfoot, and that it is non-slip whether wet or dry.

The "Fideal" automatic fire detector (Associated Fire Alarms Ltd.) is said to possess an improved response characteristic, especially to fires of slow growth. Other features: protection from moisture and corrosion, easily accessible but not obtrusive, unaffected by stresses other than fire.

"Cleervue" machinery guards (The Silvaflame Co. Ltd.) will be displayed. This range uses high duty aluminium castings with visors of clear Perspex which permit clear, yet safe vision of machining operations.

Identification of pipelines could be simplified—and made safer—by the use of self-adhesive tape of various colours. The Sellotape range (Gordon & Gotch Ltd. is said to be resistant to water, chemicals and acids. Warning symbols, direction flow signs and descriptive tape can be obtained.

Health. Rozalex No. 16 is a new silicone barrier cream introduced by the makers of two other new specialised cleansing creams. The Waterless cleanser is designed for use where water is difficult or inconvenient to obtain and could well be used at the bench where resins have to be removed frequently. Stain-removing cream is designed for use by operators of modern duplicating machines.

A unit especially designed to facilitate the direct use of standard one-gallon cans of hand cleansers,

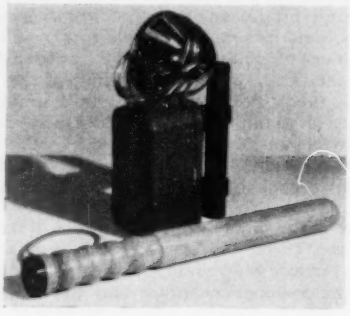
creams or liquid detergents will be shown by Brightwell Dispensers Ltd. A dispensing valve simply screws on to the neck of the container which is then mounted on quick-release brackets in the wall.

Hygiene. For hand-drying, the exhibits include various methods. The Air-Towel (Spiral Tube & Components Co. Ltd.) has been produced in the new one-man model for use in small toilets. Operation is simple: by depressing a pedal with the foot, a stream of hot air is immediately released.

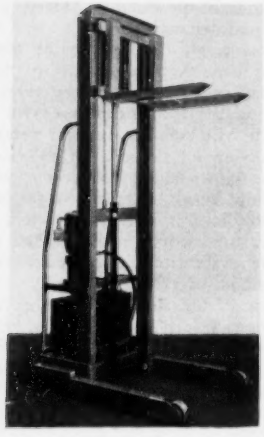
The V.H.A. towel (Bowater-Scott Corporation Ltd.) is an individual paper towel with a linen-like appearance. It is claimed that V.H.A. absorbs water instantly, and that it does not disintegrate. Demonstrations of its features will be given on the stand. Dryall paper towelling (Cresco Ltd.) is a new product in roll form which has been especially designed for use in industrial canteens. The standard roll is 18 in. wide and 250 ft. long. It is served from a dispensing cabinet supplied free on loan. Receptacles for the disposal of used paper towels are provided by the makers of Kwickdry (Freeder Brothers Paper Mills). They also supply dispensers fitted with a controlled delivery device to save waste.

The Air-Towel—one-man model.

Multitone Electric's new electronic truncheon and lantern.



Model RD1: heavy duty electric tractor, by Brush Engineering.



The "Vertolifter" hydraulic elevator.

Design for Efficiency

Handling. The "Vertolifter" hydraulic elevator truck range (Powell & Co.) comprises four basic standard designs: 500, 800, 1,200 and 1,600 lb. models. Obtainable in two heights of lift—60 or 75 in.—they can be fitted with either fixed or laterally adjustable forks. The battery model is supplied with a 12-volt heavy traction-type battery and the mains electric models can have either three or single phase motors of standard voltage ranges.

Brush Engineering Co. Ltd. will be displaying their new RD1 heavy duty, battery electric tractor. Capable of an unladen speed of 10 m.p.h., the RD1 possesses several safety features: foot-operated controller which prevents too rapid acceleration, interlock to prevent sudden change from forward to reverse, interlock to prevent battery recharging socket being used unless switch is in the "off" position.

The Lightweight pulley block (Herbert Morris Ltd.) is both portable and light. To improve handling, the block is fitted with a handle—thus the supporting hook can be manipulated into whatever sling, trolley or ring is being used, without the operator having to use the same hook for lifting. Lightness is also a feature of the Vulroid vulcanised fibre containers (J. Burns Ltd.). Models are offered to meet the specific requirements of individual firms.

General efficiency. The Slangle slotting system (Sommerfelds Ltd.) allows infinite "boltability", say the makers. The diagonal leg of the slot avoids blind spots of parallel slotting or holing arrangements. Slangle is rust-proof and coated with polychromatic grey paint.

To aid the nightwatchman, Multitone Electric Co. Ltd. have further developed their electronic truncheon device. The baton itself has become more workmanlike—wood, with a leather strap—and the electronic, alarm-actuating system has been incorporated into a new lantern.

Emphasis of the Tickopres display of "in-plant" label-printing will be upon work simplification. Nine machines will be seen printing production control, stock control, despatch data and other detail on a wide range of plain or reprinted labels. Model A3 produces nearly 10,000 labels, tickets

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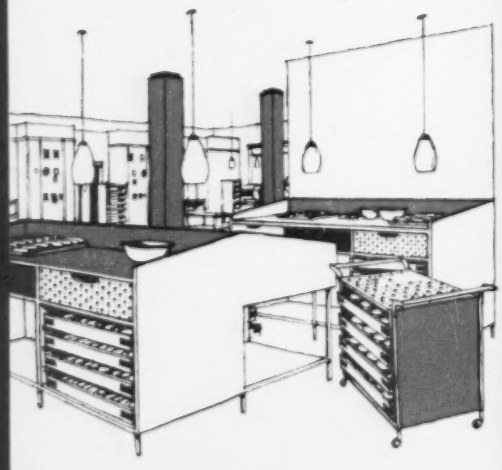
The illustrations on these pages give some idea of the almost limitless possibilities these surfaces open to modern factory design.

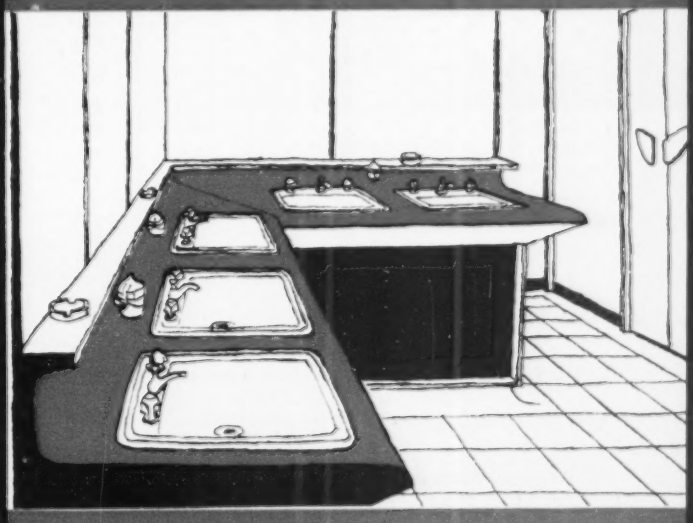


Formica surfaces on the Work Bench
The extreme durability of Formica laminates makes them the invaluable solution to many problems of work bench wear and tear. Heat (up to 310°F.), mild acid, paint—a Formica surface weathers them all with a smile.

Formica surfaces in the Stockroom
However tidy the stockroom is kept, dust is ever-present; that's where time-saving, no-scrub-or-polish Formica surfaces are a real boon. And if you have shelves of chemicals to cope with, Formica laminates are *always* the stain-free answer.

Formica surfaces in the Canteen
Morale building surroundings for meal-time relaxation, and so easy for the catering staff to keep not just clean but shining, no matter what gets spilled. On table-tops, counters, serving hatches, panels—and for absolute hygiene behind the scenes in the kitchen.

Formica surfaces in the Cloakroom
Vanitory units—the latest brilliant application of Formica decorative laminates; luxurious, space-saving units that house all the requisites for washing and grooming, while banishing all unsightly pipes and plumbing from view.



Formica surfaces in the Despatch Bay
Hard knocks and heavy duty again call for the toughness of Formica laminates. Gum, ink, sealing-wax—none of them can spoil these surfaces for longer than it takes to wipe them clean again.

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or tags per hour and, if the user's printing needs suddenly increase, a small electric motor drive can be inserted in its base.

Dyeline prints can be produced from transparent originals on the new Mercury Continuous Reproduction unit (E. N. Mason & Sons Ltd.). The approximate printing speeds are between one foot and five feet per minute. The equipment is especially designed to save physical effort and, at the same time to fall within the price range of the normal plan print room.

Rolcard (M.B.C. [Office Systems] Ltd.) is the latest rotary card system. It is not necessary to use punched or perforated cards and, say the makers, it is easily adapted for cards in non-standard sizes. Durable castors make it as easy to move as to operate.

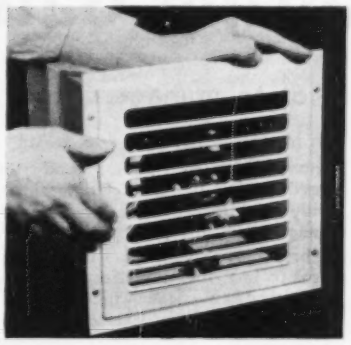
With the Movigraph Rotadate wall chart (Adapta-Charts Ltd.) it is possible to plot a situation over an indefinite period. Interchangeable panels are used and can be replaced without disturbing other data. Basis: perforated plastics panel into which signals of various shapes and colours are inserted.

Comfort on the job

Noise. A new acoustic cover (Burgess Products Co. Ltd.) is displayed which muffles noise from accounting machines. Whilst muffled, the machine is still visible and there is ample room in the booth, say the makers, for the largest machines and the table or desk on which they stand. The panels of the cover have an inner lining of perforated mild steel sheet, and an outer facing of plain sheet: packed in between is a non-inflammable sound-absorbent material.

Thermacoust Ltd. are displaying examples of roofing slabs to control noise, avoid heat losses and obtain maximum fire resistance. Gyptone acoustic tiles (Gyproc Products Ltd.) will be featured on the maker's stand. They consist of mineral fibres bound with a cementious compound. Features: incombustible, thermally insulating, pleasing appearance (white fissured surface).

Fatigue. The "Treadmaster" range (James Walker & Co. Ltd.) is claimed to absorb floor vibration and to reduce worker fatigue, especially on jobs which involve standing for long periods. Additional features: cool in summer, warm in winter, oil- and grease-resistant. Units are moulded in a special composition, ⅝ in. thick, with a basic form 4 ft. by 2 ft. Choice of colour. Noise, shock and vibration is also absorbed by the new level-mounts made by Vulcascot (Great Britain) Ltd. Rubber, oil-resistant pads grip the floor under the weight of the machinery and muffle the noise.



Greenwood's Mechavent 75 wall-mounted ventilator.

Burgess Products' acoustic accounting machine cover.

Office insulation: Sunway aluminium Skylight units.

Insulation. "Silbestos" (Sprayed Insutions Ltd.) can be applied to any type of surface, claim the makers—plaster, brickwork, asbestos cement, timber or metal—in thicknesses from ¼ in. to 6 in. A number of finishes are available for the decoration of this coating.

Lighting. Sunway Skylight units (Horsley, Smith & Co. [Hayes] Ltd.) can be operated by remote hydraulic control. The makers recommend Glacier white for colouring, as this does not impede the normal amount of daylight entering the offices. They claim that the aluminium construction of the struts gives perfect insulation.

General Welfare

Lockers. Norwood Steel Equipment Ltd. are displaying lockers in various shapes, sizes and combinations: square or rectangular lockers of 12, 15 and 18 in.; single, or nested in banks. Louvred for ventilation, they are fitted with locks to a master series, and come in a range of colours. Bonderising is designed to beat rust. Full height models have a hat shelf and two fitted coat-hooks.

Heating and Ventilation. The Connor high velocity air-conditioning system (Ozonair Engineering Co. Ltd.) is designed to provide any desired temperature and acoustic conditions in each room served by the system. All rooms are individually controlled, although they are connected to the one main system. All models are available with either flat or sinuous baffles.

Dual-purpose ventilators (Colt Ventilation Ltd.) have a special feature: whilst giving daily ventilation, they can also provide fire protection. They will sound a simple fire alarm and instantly open to release smoke or gases.

The Mechavent 75 (Greenwood's and Airvac Ventilating Co. Ltd.) is a wall-mounted unit for removing stale air, fumes and cooking smells from the canteen kitchen. These are in turn replaced by clean, fresh air. In an average small kitchen it will change the air about 14 times per hour. When

(Continued on page 49)

Employees always lose in the Waiting Game

Security means a lot to managers, too

FOR the past few months we have been considering the problem of change in a business organisation. Our case history: the board room which antagonised its managers and employees by the ham-fisted introduction of work study. But there are other changes which can create the same fears and the same discontent: more communication trouble spots.

A woman executive has given me a disturbing example. Her firm was recently merged with another. As a result she has lost her job—after several years with the firm. The central services, for which she was partly responsible, were pooled and this caused a lot of redundancy among highly skilled and experienced managers.

Threatened change is in itself a threat to security. And security is the most important need which a highly industrialised society has to satisfy in its members. Our woman executive learned this vital truth the hard way, in the months while the staff were waiting to hear what was to happen to the firm—long months when morale slumped and fear and anxiety took over.

We hear a great deal today about the new technology bringing change and redundancy to the workers. But this other growing trend needs close study; where two or more firms are merged and where executives are displaced. Such mergers should be effected with as much concern for the well-being of managers as is shown for redundant hourly-paid workers.

Otherwise, take-over bids will add one more anxiety to the list of those which are already causing growth in stress diseases among our executive population.

Executive worries and weaknesses

WHAT are some of the other worries which prey on a manager's mind? One chief executive decided to find out. He was proposing to pick some new members for the board room from among his top managers. Having made his choice, he took them to an hotel and said to them: "You are all successful men, obviously. But what do you feel are your weaknesses?" Some felt ill at ease on social occasions some thought they had risen so quickly that their wives had not had the opportunity to keep up. Others confessed to a lack of knowledge of economics, besides having no fundamental philosophy on which to base their actions. The general feeling was that their training and experience as specialists had made them narrow-minded.

Another chief executive sent one of his managers to the Continent—not to study methods—but to attend a fortnight's course on philosophy.

What are your views on the anxieties which beset managers and supervisors? Do you think that some of these fears are linked mainly with the man's personality? Or could they be reduced by training him more thoroughly (especially in the social skills) and by ensuring that he has a sound organisational structure within which he feels free and secure?

One group of managers decided that all three aspects were important. A manager should possess "an analytical mind and a clarity of thought". His self-control should be exemplary. As a clearing house for communications, he must "be able to mix well, put people at ease, be readily accessible and maintain a sense of proportion and humour". He should be scrupulously impartial and fair.

This latter quality can have many different interpretations. Subordinates like their supervisors to be fair in dealing with each man in relation to the next. They also like him to give and take a bit. A lot of bad feeling can arise, for example, over the granting of time off.

One man wanted an extra day at Christmas so that he could visit relations. The supervisor refused, and the man was very upset. He said that he had given his time to the firm when they needed it during a summer rush period without overtime pay. The supervisor felt, however, that if he granted extra leave to one man it would not be fair to the others. It all depends what you mean by "fair". What is your interpretation?

Your views are important in these discussions. We pay a guinea for each letter published on this page.

New Books

New Films

Legal Guidance

Outlines of Industrial Law. By W. Mansfield Cooper and John C. Wood. *Butterworth, 35s.*

THIS IS THE THIRD edition of a book which was originally published in 1947. Developments in industrial law since then have made it necessary to expand or rewrite certain chapters; e.g. those which deal with the Mines and Quarries Act 1946, and the National Insurance (Industrial Injuries) Acts 1946-57. Though mainly intended as a textbook for teachers of industrial law, it has an obvious place on the personnel manager's shelves. Points of law are well illustrated by constant reference to past court verdicts, and there is a lot of useful information on the employer's liability for employee injury, trade union law and settlement of disputes, the Factories Acts 1937 and 1948, reinstatement in civil employment, the regulation of wages and the Fatal Accidents Acts.

Scope for Training

The Bulge: Its Industrial Impact. A National Plan. By John Wellens. *The John Wellens Organisation, 5s.*

BACK IN 1958 Mr. Wellens contributed a series of stimulating articles on training to this journal. During the series he reappraised industry's approach to the training of apprentices and other young workers ("We must change our methods of training young people", February, 1958). In this new monograph he carries his arguments a stage forward.

The weakness of present training arrangements, he argues, is that they do not offer a suitable framework within which all industrial organisations and interested parties can make an effective contribution. He has tried to get away from all the old fashioned ways of looking at the problem, to devise a new system which will give ample scope for everyone.

Sample points in his plan: a National Industrial Training Agency *set up by the government* — a full-time reporting, advisory and *mobilising* body. It should maintain a schools appointments bureau, mobile exhibitions, a "clearing house for higher grade industrial courses and advanced apprenticeships". The craft unions should relax the age of entry into apprenticeship, and their attitude towards the semi-skilled worker "to enable more skill content to be infused into selected semi-skilled jobs". Among other things, employers should keep every apprentice place filled at all times; large firms should seek ways of helping smaller firms in their training plans.

There is of course much more to the plan than we have room for here. Mr. Wellens's avowed aim is to stimulate discussion. With this booklet he seems certain to do just that.

Employee Re-education

The Motivation, Productivity and Satisfaction of Workers — a prediction study. By A. Zaleznick, C. R. Christensen and F. J. Roethlisberger. *Harvard University Graduate School of Business Administration.*

A LOT HAS BEEN written and talked about the idea of a common interest between management and employees. If the long debate has done nothing else, it has served to warn us against looking for an easy solution. The chief value of this book is that it states clearly and exactly what management has to contend with, where the weaknesses of our present industrial system lie and why the worker withholds his co-operation despite the cajoling and munificence of his employer.

Fundamentally, say the authors, management is using the wrong tools for the job. Good wages, fringe benefits and good working conditions, by themselves, are completely outmoded. Now that the worker has them — and feels that they are indisputably his — his basic subsistence needs are satisfied. But he has other needs, "social" and "status" needs, and now he concentrates on satisfying them. Management must find ways of helping him for at the moment, the authors claim, he is finding satisfaction in his working group. And the group is interested primarily in its own affairs. Production goals are ignored: the group concentrates only on production norms.

To obtain this information the authors went to work beside a group of 50 workers in a medium-sized American manufacturing company. Their team of field researchers spent about a year collecting data and testing certain hypotheses which had grown out of the programme of human relations research conducted by Harvard Business School since 1951.

The final chapter offers some interesting suggestions; among them, a programme of employee "re-education" involving the same concepts, methods and materials used in current management development courses. The authors admit that it would be expensive and would have to be carefully planned and controlled. Would it be worth it? That is for every manager to decide — after he has read this book.

All About Films

MAKE YOUR OWN FILMS—The British Institute of Management has issued a reminder about its Visual Aids Information and Advisory Service. Apart from maintaining a comprehensive register of available films and filmstrips, this branch of the BIM's activities offers expert advice on the making and use of films. It will also put inquirers in touch with the sources of all kinds of visual aids.

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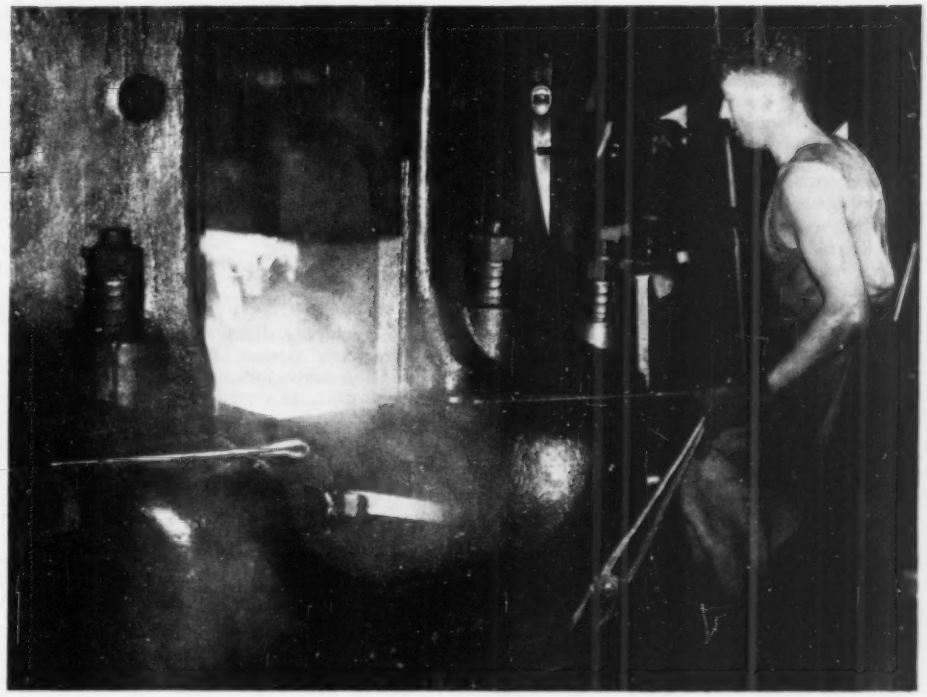

Heat and fatigue: a study of 20,000 steel workers revealed that people who do heavy work in great heat—and undergo sudden temperature changes—often suffer from respiratory diseases.

Heat, Light and Productivity

Second article on industry's 'sleepy' people exposes the physical conditions which induce fatigue

by Dr. E. E. Lieber

MEDICAL OFFICER, MICROCELL GROUP OF COMPANIES

HITHERTO we have defined fatigue as a weariness which results from bodily or mental exertion and which leads to a decrease in working capacity. In industry the reduction of working hours from ten to eight has reduced the factor of overwork, and muscular fatigue is no longer so important. But there remain others, some psychological, some environmental. We may assume that the occurrence of fatigue is influenced by such factors as hours of work, speed of output, temperature, lighting and the inexperience of the worker.

In the factories which I supervise this is how the problem presents itself time and time again: accidents which were formerly ascribed to overwork may now definitely be attributed to personal factors. Undue fatigue may be caused by lack of training, or an abnormal attitude towards work, and experience has taught us to pay particular attention to the worker's mental and nervous reactions to his environment—to study, for example, the thermal and visual factors which affect him while he is working.

Too Hot or Too Cold. We are all familiar with the effect of warm weather upon our working capacity, how it slows us down. A special enquiry into the tinplate manufacturing industry as long ago as 1919 showed that warm weather could cause a drop in output of as much as 10 per cent. In well ventilated factories, however, the percentage was found to be considerably reduced. Even in some forms of sedentary work, such as wireless operating, there is an increase in error above a certain temperature. Similar tests have been made in the mining industry. In the hotter workings it was discovered that the increase in accident rate was directly proportional to an increase in temperature. When it was over 75 degrees Fahrenheit, accident rates rose sharply.

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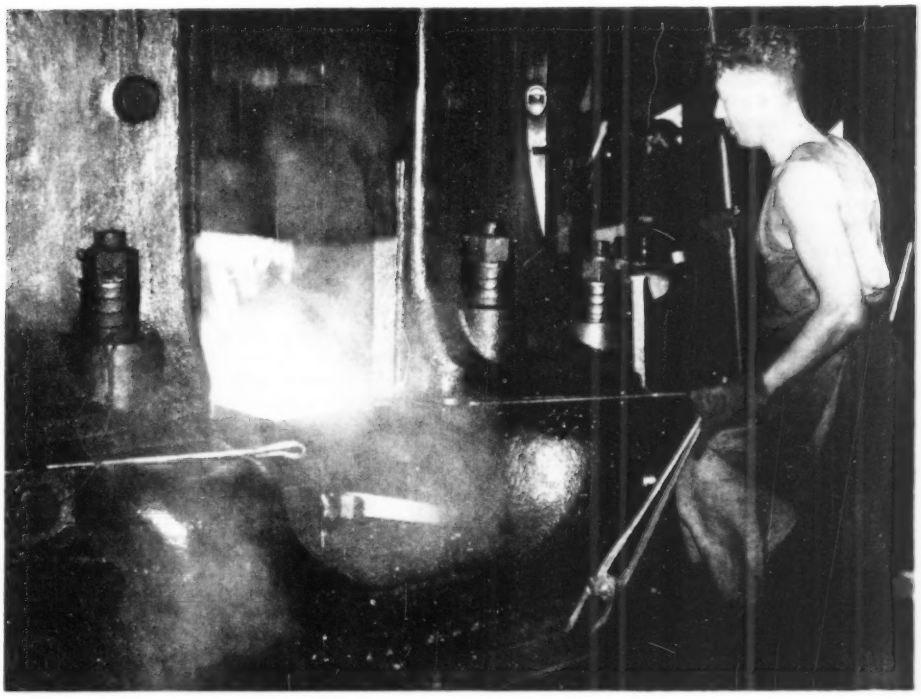

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by Dr. E. E. Liebow

MEDICAL OFFICER, MICROCELL GROUP OF COMPANIES

HITHERTO we have defined fatigue as a weariness which results from bodily or mental exertion and which leads to a decrease in working capacity. In industry the reduction of working hours from ten to eight has reduced the factor of overwork, and muscular fatigue is no longer so important. But there remain others, some psychological, some environmental. We may assume that the occurrence of fatigue is influenced by such factors as hours of work, speed of output, temperature, lighting and the inexperience of the worker.

In the factories which I supervise this is how the problem presents itself time and time again: accidents which were formerly ascribed to overwork may now definitely be attributed to personal factors. Undue fatigue may be caused by lack of training, or an abnormal attitude towards work, and experience has taught us to pay particular attention to the worker's mental and nervous reactions to his environment—to study, for example, the thermal and visual factors which affect him while he is working.

Too Hot or Too Cold. We are all familiar with the effect of warm weather upon our working capacity, how it slows us down. A special enquiry into the tinplate manufacturing industry as long ago as 1919 showed that warm weather could cause a drop in output of as much as 10 per cent. In well ventilated factories, however, the percentage was found to be considerably reduced. Even in some forms of sedentary work, such as wireless operating, there is an increase in error above a certain temperature. Similar tests have been made in the mining industry. In the hotter workings it was discovered that the increase in accident rate was directly proportional to an increase in temperature. When it was over 75 degrees Fahrenheit, accident rates rose sharply.

Among the coal face workers employed in the cooler seams, where the temperature is under 70 degrees Fahrenheit, the accident rate declines with increasing age, up to fifty years, but after the age of sixty there is a slight rise again. Similar observations have been made in the glass manufacturing industry, and my records show that of people employed in the furnaces, the younger are more quickly fatigued than the older ones.

This is a common phenomenon in industry generally, and it is, of course, partly due to greater experience: the older worker has learned to use his muscular energy in the most economical way. We can therefore say that the efficiency and safety of the industrial worker are affected by high temperatures and that sickness is increased when people work hard in relatively great heat and then suffer chilling.

A study of sickness among 800 workers in the plastics industry showed that people who do heavy work in great heat and are liable to sudden change of temperature are also usually more liable to respiratory disease than other workers who are not exposed to such changes. Professor Vernon made an investigation of 20,000 cases in the iron and steel industry and came to the same conclusion.

Low temperature can also increase fatigue: a cold environment will induce fatigue by slowing down the circulation. The Factories Act of 1937, requires a minimum of 60 degrees Fahrenheit after the first hour, but in practice, for some kinds of work, a higher temperature will often be found desirable. In one study of industrial comfort, careful investigation by Bedford revealed that complaints from operatives were more frequent in cool rooms than in warm ones.

One real problem is that of ventilation. There must be constant change of air without draughts, but most important is the avoidance of temperature at different levels. Where the maximum heat comes from above there is a widespread feeling of "stuffiness" in the head combined with cold feet, which must result in a slowing down of activity.

Strain on the Eyes. Many people—young ladies especially, perhaps not wishing to spoil their appearance—are unwilling to wear glasses and so get easily fatigued. People with one eye, will tire more quickly if given tasks which require a broad field of vision; and in processes where colour vision is involved, partially colour-blind workers will also suffer fatigue.

A few general principles should be laid down:—

- We must make sure that the eyes of the workers have been tested by an ophthalmic surgeon or optician, and any refraction defects suitably corrected, especially where close work is concerned.
- The level of illumination must be suitable for carrying out the particular work.
- Any sources of glare or shadows in every field of vision must be avoided.
- The guards of machinery should be properly illuminated; optical aids should be used (wherever indicated) to reduce eye strain.

The wide use of fluorescent lighting has already solved many of these problems. It does at least do away with shadows; but the light of the fluorescent tube can in itself be tiring, and, in my opinion, indirect lighting is always better.

Shadows falling across working places or machines may cause eye fatigue and are therefore a potential source of danger, and special precautions should be taken to rectify or nullify them. A flickering source of light may cause irritation and fatigue with consequent accidents. This is all the more dangerous because, when eye fatigue is produced in this manner, it may not be evident for some time.

The physical factors of visual fatigue are complex. In binocular vision, twelve muscles are involved in every movement of fixation of both eyes. Four other muscles control the aperture of both eyes, and two tiny muscles the curvature of the lenses. Some of these muscles are subject to voluntary control, and they work, not as independent units but in groups, with fine, co-ordinated action. It is easy to see how a feeling of strain and discomfort can be produced by any strain upon these delicately co-ordinated ocular muscles.

There is another form of visual fatigue which arises from strain upon the functions of convergence and accommodation. It is found especially in persons capable of high-grade binocular single vision. Fatigue of accommodation is particularly common where monocular vision is present. Moreover, general fatigue increases the inertia of accommodation and the difficulty of maintaining convergence.

For this reason visual fatigue is often complained of before any true or established state of general tiredness or fatigue is noted.

The term "eye strain" is a common one. It may occur in persons who have some uncorrected error of refraction or some latent imbalance of the extra-ocular muscles. If any muscle has to do more than its share of work it soon becomes tired, and this occurs in the excessive muscular output required from compensating for long-sightedness. In this condition the ciliary muscle of the eye gets very tired.

The resulting discomfort and fatigue will, of course, depend on the visual task—or what the mind is trying to see. For instance, actors on the stage, facing very bright lights, have no exacting visual task. But the operative assembling parts or watching a complicated machine is dependent on the lighting for carrying out his work; for him, glare or shadow may be the chief cause of fatigue.

Fatigue of the eye elevating muscle has been held to be one of the causes of miner's nystagmus, and the oscillation of the eyes from which this condition gets its name is most readily elicited when the sufferer raises his eyes. It is, of course, also related to the difficulty of maintaining fixation under conditions of poor illumination.

Close Work Many cases of eye strain occur among operatives engaged on close work, even where the lighting is good. I have seen this kind of work carried out at a particular factory where very small parts have to be handled and assembled. Here good use is made of the optical aids already mentioned—glasses suitably placed between worker and object, or industrial binocular magnifiers.

In some firms the ordinary watchmaker's glass is used. But this has the disadvantage of causing one eye to work more than the other and dissociating binocularity. It is also possible to use special magnifying and prismatic spectacles for fine work. Industrial bifocal spectacles are also in fairly widespread use for assembling television tubes where the focus of vision is constantly changing.

Colour. Eye fatigue can be greatly reduced by the use of contrasting colours, particularly in assembly work. "Daylight" fittings sometimes fufil the same purpose, notably in textile and wholesale clothing manufacture.

In his next article Dr. Lieber will discuss some of the problems of noise, and what is being done to reduce industrial fatigue in noisy surroundings.

Better sight for industry

ARE you working your employees too hard? Check your accident rates, your sickness lists, the amount of waste and rejected articles, and ask yourself the question again. Almost every job requires skill—manual dexterity, and intelligence—but there is another skill which is frequently ignored, especially by the worker himself.

Sight is a skill which should be measured to ensure that every worker has the correct visual ability for the job he is performing—from the close machinist to the labourer, the office worker to the crane driver. It can be measured, simply and accurately, with a new visual screening device for industry, the Ortho-Rater, made by U.K. Optical Bausch & Lomb Ltd., of London.

The equipment has been developed and used extensively in the United States, where for many years the associate American company, with the co-operation of Purdue University, has carried out large-scale visual screening in industry and schools. More than 8,000,000 people were tested; 40 per cent of them lacked the visual efficiency needed for the satisfactory performance of their jobs.

The Ortho-Rater, it must be emphasised, *does not prescribe correcting lenses*. It does, however, check by means of photographically produced slides, twelve important and basic visual skills, including depth perception, colour vision, plus visual acuity and muscle balance for close work and distance.

Simple. As he checks each skill, the tester simply notes the results numerically on a record card supplied by the makers; no calculations are needed and the tester does not have to be a specialist. The personnel manager—or even his secretary—can learn how to operate the equipment in about half-an-hour, the makers claim.

Accurate. Each test takes from 7 to 10 minutes, and such is the design of the twelve slides that the employee cannot cheat; nor can the tester make a mistake. When the test is complete, the marked record card is compared with a standard card (also supplied by the makers) which has been drawn up for that particular employee's type of job.

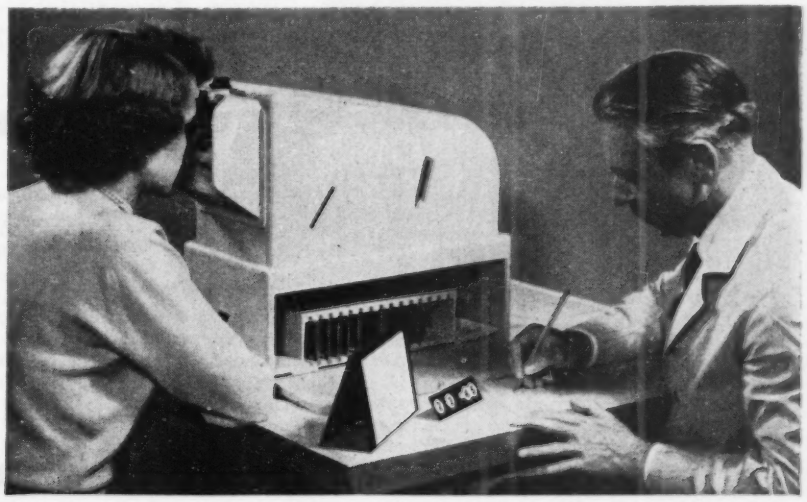
After exhaustive tests in factories and offices, during which over 12,000 "job profiles" were collected, six basic visual standards have been established. The types of work they cover are:—

1. Clerks and administrators;
2. Inspectors and close machinists;
3. Drivers and operators of mobile equipment;
4. Machine operators working at arm's length;
5. Labourers, porters, guards, janitors, etc.;
6. Mechanics and skilled tradesmen, like plumbers and carpenters.

By means of colour shading on these standard cards, the tester can tell at a glance whether the employee's visual skill satisfies the requirements of his job, and exactly where he falls below standard.

The makers recommend regular and systematic screening with the Ortho-Rater: employees should be tested at least once every two years.

Cost of the Ortho-Rater is in the region of £90. The makers are always ready to give demonstrations on industrial premises. Full details can be had from U.K. Optical Bausch & Lomb Ltd., Instrument Division, Mill Hill, London, N.W.7. (Telephone: FINchley 2660).



Visual screening with the Ortho-Rater. The tester notes the employee's sight score on a record card, which is later compared with one of six job standard master cards.

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Cash in on this latest Mechanical Revolution

An organised system of good housekeeping is essential to modern industry; most of the old problems are solved now that cleaning is mechanised

by John V. Phillips

METHODS and materials for industrial housekeeping have undergone a slow, but steady, change since the end of the war. Britain is now progressing gradually towards a standard of industrial hygiene which has been taken very much for granted in the United States for a number of years. Until comparatively recently British industrial management seemed rather disinterested in factory cleaning—probably owing to a lack of understanding of the problems involved. Nowadays work study, combined with a growing concern for accident prevention, has gone some way towards bringing a little light into the darkness and some form of organised cleaning is now in operation in a large percentage of our factories and workshops.

And one of the main deciding factors has undoubtedly been the development of mechanical polishers and scrubbers.

The standard of cleanliness in offices and office blocks is considerably higher, and has been for some time. Contract cleaning has mechanised thousands of "Mrs. Mops" who are responsible for the maintenance of millions of square feet of office block flooring in every part of the country, and although a certain proportion of this work will always be done with a scrubbing-brush and a bucket of water, by far the majority of these women are experienced in the handling of mechanical scrubbers which clean every floor surface at rates up to 6,000 square feet per hour—about five times faster than conventional hand methods.

The change-over to contract cleaning in industrial premises will take longer. The more popular method is still to employ direct labour for day-to-day cleaning, while a firm of cleaning contractors tackles the whole building once, or at the most, twice a year. This can generally be achieved with little or no disruption of production even if the factory does not close for a set period. Flooring is done in sections, usually at week-ends, and roof

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and wall cleaning can be tackled with the aid of portable scaffolding.

Housekeeping in both industrial and commercial premises is also being assisted in the planning stage. Architects and designers of factories and offices are taking maintenance into consideration. Provision is made for the installation of window catwalks or cradle supports from which windows can be cleaned in complete safety and at considerable heights.

Waste paper and refuse disposal systems are also finding a place in the blueprint stages. The Owen Owen department store in Coventry has a system of chutes running from various points on each floor to a central collection unit in the basement where, in the case of waste paper, this may be baled and sold.

But every pre-war industrial building has awkward maintenance problems. There are, unfortunately, instances where cleaning is regarded as a necessary evil and is restricted to sweeping up rubbish from the production lines once a week. This results in cracked and germ-laden floors which attract dirt and grease, and can cause accidents; grime-covered windows which blot out natural light and necessitate extra artificial lighting.

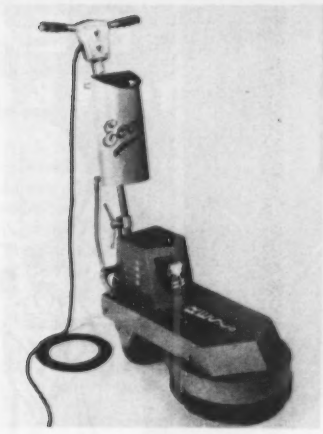
The answer to these problems lies largely in the correct, organised use of mechanical cleaning equipment. There is a wide selection of machines available for floor cleaning, suction cleaning and wall washing.

Floor Cleaning. There is no need to put up a case for mechanical floor scrubbers or polishers. The results speak for themselves, and the saving of labour and time always justifies the expenditure on any of the recognised machines.

If the top surface of a floor is preserved in good condition it will be easy to keep clean. Daily polishing will keep most floors in excellent condition once a good working surface has been achieved. Provided that polish or wax is not allowed to build up in corners, or along the edges of traffic lanes, the floor should keep its natural appearance for a long time.

A great deal can also be done to renovate badly cracked and pitted floors. Sanding and scarifying attachments can be fitted to the majority of floor maintenance machines if it is not thought necessary to purchase a special sanding unit. The floor can be "stripped down" to a new level and a fresh surface of polish or seal rebuilt.

Floor maintenance machines are now



RIGHT.—*Resco Machines Ltd. make the Economy—a heavy-duty combined polisher and scrubber, designed for easy manoeuverability, particularly under low furniture.*

LEFT.—*Revvi have modified their established wall-washing machine to facilitate cleaning of curves, hollows and mouldings. The secret: a half-inch-thick foam pad.*

BELOW.—*A triple alliance keeps the oak-block floors in trim at AEI's new London offices. (Picture shows the canteen). Office Cleaning Services have the contract; they use Ronuk Liquid Wax—with anti-slip Ancrol—rubbed up with a Columbus Dixon electric polisher.*

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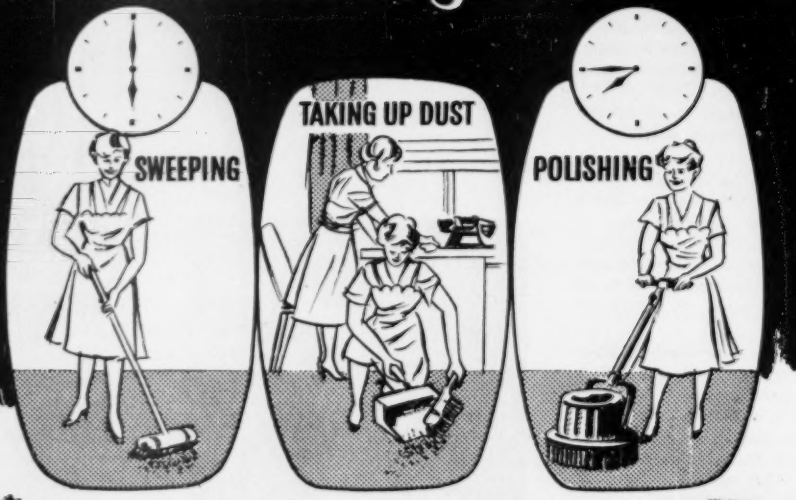

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produced in a range of sizes for industrial and commercial premises, and they are also available in shapes which will enable cleaners to tackle corners, and to clean effectively under fittings, awkward ledges and even under desks.

Every manufacturer provides an advisory service which can be called upon to tackle special problems associated with floor cleaning. They will always welcome new problems if only to demonstrate the versatility of their machines.

It is a good idea for every works manager or office housekeeper to plan his cleaning programme in conjunction with the manufacturers of the machines he uses. They will be able to give him not only exact details of the capacity of their machines, but also advice on the correct detergent, polish or seal to be used with the machines.

Suction Cleaning. This part of a cleaning programme can be very closely related to floor cleaning, for a number of floor maintenance machine

Martindale's Port-a-Vac cleaner

manufacturers also produce a range of suction cleaners for walls and floors, and indeed, suction cleaning units are often built into floor polishers.

Industrial vacuum cleaners with attachments for high-level work are essential in an organised industrial housekeeping programme. Walls, shelves, light fittings, roof girders, and so on, can be cleaned in this way, and added working safety is provided by the portable units, designed to be carried on the back of the cleaner while he works from portable scaffolding or cradles. Heavy duty suction cleaners can also be used to dry a floor which has been scrubbed with a mechanical cleaning unit; this enables work to be carried on without allowing for drying time.

Wall Washing. Although wall cleaning can often be successfully performed with a suction cleaner, engrained dirt and stains may need to be washed off. In a large building this can be a lengthy process, and here again mechanical cleaning has come into its own. Provided a wall is "washable" it is possible to cut cleaning costs by two-thirds, simply by using one of the machines which make use of a detergent solution. This is applied with a rubber pad, while a second pad does the drying. The London telephone exchange uses this method to wash its switch-room walls.

In cases where it is not possible to wash walls, a number of contractors employ a system of dry cleaning.

Research has shown that more than half the time spent on domestic housework is devoted to cleaning. This amounts, in man-hours, to the equivalent of four million people working full time. In industry the figure is almost a million.

It is worth while adding together the man-hours spent on cleaning in your organisation. The average percentage of man-hours spent on housekeeping in a British factory of medium size is around 15 per cent, but it often rises to over 20 per cent. And these figures

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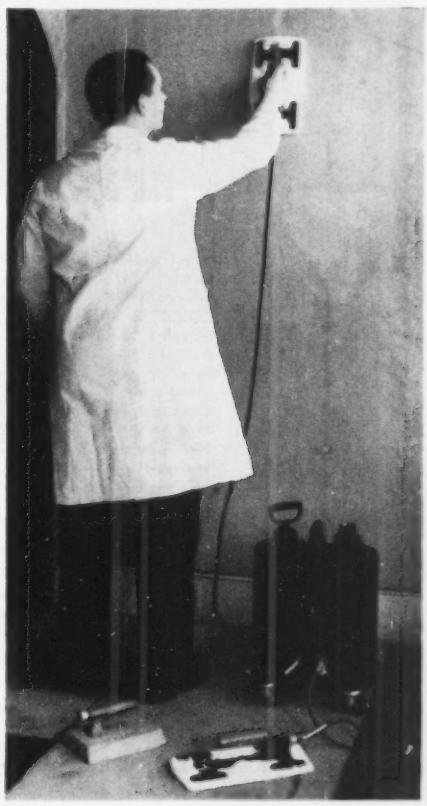

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BUYERS' GUIDE TO MECHANISED CLEANING

Floor Maintenance Machines

Cimex-Fraser Tuson Ltd., 43-65 Cray Avenue, Orpington, Kent.
Truvox Ltd., Neasden Lane, London.
Columbus Dixon Ltd., Wembley, Middlesex.
Progress (Universal) Ltd., 590-594 Wandsworth Road, London, S.W.8.
Nu-Floor Ltd., Basildon, Essex.
Finnell Systems, Tudor Works, Abbey Road, Park Royal, London.
Martindale Electric Co. Ltd., 64 Westmorland Road, London, N.W.9.
Matling Ltd., 26-32 Caxton Street, Westminster, London, S.W.1.
Resco Machines Ltd., Wycombe House, Amersham Hill, High Wycombe.

Suction Cleaning Equipment

British Vacuum Cleaning and Engineering Co., Goblin Works, Leatherhead, Surrey.
Cimex-Fraser Tuson Ltd., 43-65 Cray Avenue, Orpington, Kent.
Columbus Dixon, Wembley, Middlesex.
Industrial Vacuum Cleaners, Ivac Works, Ridgeway Road, Luton.
New Welbeck Ltd., Moulsecoob Way, Brighton 7, Sussex.
Progress (Universal) Ltd., 590-594 Wandsworth Road, London.
City Cleaning Co. Ltd., 10-12 Knight Street, Liverpool, 1.
Roy Wilshere Ltd., 560 Coventry Road, Birmingham 10.
Truvox Ltd., Neasden Lane, London.

Wall Washing Equipment

Revvi Ltd., 70 Blackstock Road, London, N.4.
Clean Walls Ltd., 49 Paddington Street, London, W.1.

Cleaning Contractors

General Cleaning Contractors Ltd., Boundary House, 56-58 Worship Street, London, E.C.2.
Bateman's Cleaning Services, 28-29 Brooke Street, London, E.C.1.
All England Cleaning Services, 8 Pownall Gardens, Hounslow.
Associated London, Associate House, Edith Grove, London, S.W.10.
Renovators (Manchester) Ltd., 28 Paccadilly, Manchester 1.
Tees-side Cleaning Services, 37 Southwell Road, Linthorpe, Middlesborough.
Courtney Brothers, 307 Brixton Road, London, S.W.9.
Strand Cleaning Services, 2 Shelton Street, London, W.C.2.
Office Cleaning Services Ltd., 28/34 Eagle Street, High Holborn. London, W.C.1.

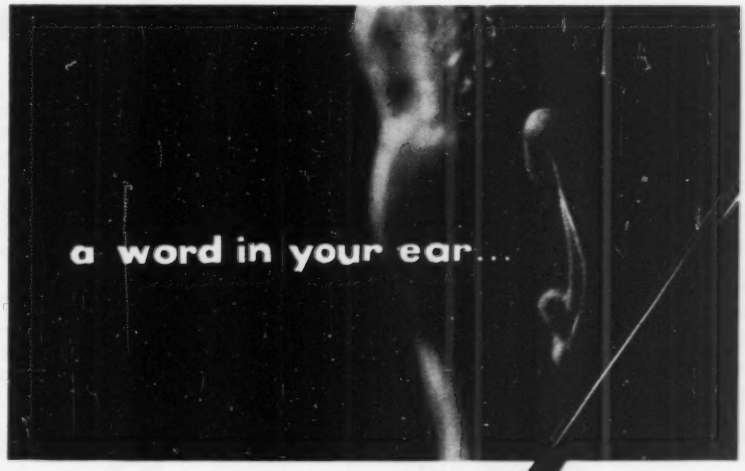
Continued from page 41

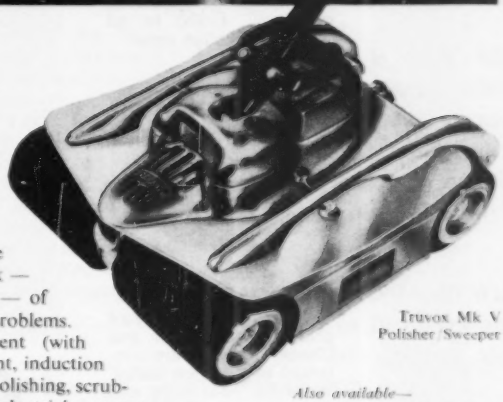
show just how important it is that cleaning programmes are carried out to a strict schedule.

The American idea of having one man, or one company, responsible for all housekeeping is ideal. He should be made responsible for the purchasing of all cleaning materials and equipment, for the training of maintenance personnel, and for the standard of cleanliness. He should be given a set amount of money each year for materials and a free hand to use it.

But whether the task be given to one man, or to one firm of contractors, one thing is certain: cleaning of business premises is now irrevocably in the machine age. In the office of the works manager of a Midlands engineering firm hangs this notice:

"Cleaning in whatever form you may tackle it is ESSENTIAL. Dirt will always be with us and must be kept down. It is in the method of suppressing this dirt that we will stand or fall."





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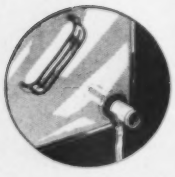

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Tea Break Control

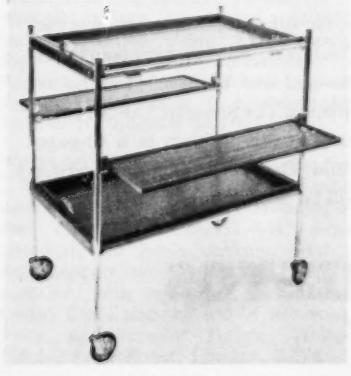
AN uncontrolled tea-break may cause serious hold-ups in production. The Blick tea-break control unit is designed to meet all cases where the starting times of breaks must be flexible. It can be set to give automatic signals to different parts of the works at different times. The signal duration can be varied to suit individual requirements.

When a button is pushed, bells automatically ring to signify the start of the break. Without any further action on the part of the operator, the second bells ring to indicate the end of the break. Provision can also be made to operate an intermittent signal as a preliminary warning. Blick Time Recorders Ltd., 96-100 Aldersgate Street, London, E.C.1.

Space-Saving Trolley

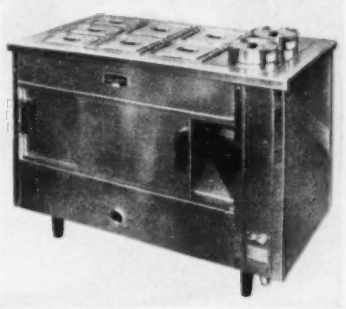
THE Taypen folding trolley may be a useful investment for delivering mid-morning and -afternoon tea to workers on the shop floor. It also has its uses for the works canteen that provides waitress service.

Made with a frame of ¾-in. chromium-plated, tubular steel, the trolley is fitted with two large, removable trays—one at the top and one at the bottom—as well as two convenient folding trays which can be locked up into position. For space economy, it can be folded up very easily, say the makers, into a space nearly one-sixth of its width (18½ in.). Price: 14 guineas. Distributors: Taypen Ltd., Suite 3, Berkeley House, 15 Hay Hill, London, W.1.



Hot or Cold Service

THE construction of the new Mayland hot cupboard enables units to be built into continuous counter runs with hot and cold service as required. Although all models are provided as standard with heavy gauge stainless steel tops, doors and front



panelling, the body work can be finished in stove enamel, vitreous enamel or stainless steel, as required.

For easy maintenance, doors and shelves are removeable and a small panel houses all controls. The unit is thermostatically controlled and is available in four standard sizes with plain, stainless steel top or Bain Marie, designed to accept stainless steel containers standardised for interchangeability. G. F. E. Bartlett & Son Ltd., Maylands Avenue, Hemel Hempstead, Herts.

● Vending Spot

VENDING machines in themselves have taken one important step towards promoting hygiene in the works: they have done away with conventional crockery and with it the dangers of cracking and chipping. But even throw-away cartons can make a mess, so the Vendwell waste receptacle manufacturers have designed this bin. The hinged letterbox flap is detachable

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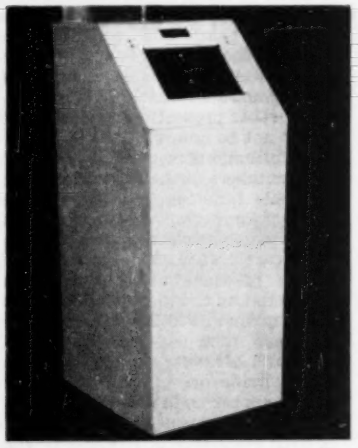
FOR HYGIENE—USE

STERGENE with DOMESTOS

Products of DOMESTOS Ltd. Newcastle upon Tyne

WMG/S34

to assist emptying and is fitted with rubber silencers. To avoid corrosion and deterioration of the base, there is a wire mesh, underneath which a galvanised tray is housed to catch any dregs from the used cups. The waste bin's simple lines make cleaning an easy job, say the makers—yet another point of hygiene. Priced at £3 (with discounts for quantity orders), the bin might suggest itself for use even in

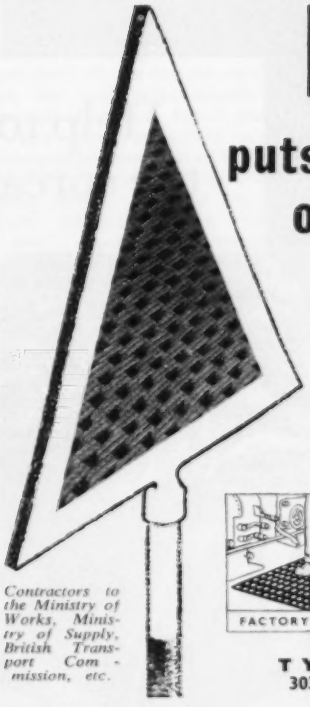


canteens where there are no vending machines. Vending Supplies and Service Ltd., 39 Dover Street, London, W.1.

White and Green

"FISH for Industrial Catering": this booklet, issued for the White Fish Authority (2-3 Cursitor Street, London, E.C.4), contains recipes for 50 portions, hints on frying, grilling, baking, broiling, steaming and poaching, and points to remember on hygiene, the choice of fish and garnishing. Also available is a companion volume for hospital caterers.

"CABBAGES and Things"—the first of two volumes on vegetable cookery and published by "Housewife" for the Gas Council—is more obviously for home cooking. But it does contain some useful hints on preparation, with two short chapters on frozen foods and the use of left-overs. Price, 6s.; Edward Hulton, Hulton House, Fleet Street, London, E.C.4.



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The Poliomyelitis virus is found in large numbers in the intestinal tracts of people suffering from the disease. But "*a large proportion of the virus hosts are symptomless carriers*".*

These carriers are often quite unaware of the presence of the virus and unaffected by the disease themselves; but they can unwittingly infect others who may then develop the disease. Flies and bluebottles are, of course, also distributors of Polio virus and dangerous germs in general.

You can help considerably by insisting on high standards of hygiene in your Offices and Factories. The washing of hands before meals and after going to the toilet is *most important*. And constant war should be waged on flies.

As shown by the World Health Organisation's Technical Report, oxidising agents are the most effective chemical disinfectants against the Polio virus. *Domestos is an extremely powerful oxidising agent.*

It is therefore a sensible precaution to use Domestos for cleaning and disinfecting all surfaces in kitchens, canteens—wherever food is handled and prepared; in dustbins and waste containers; and in all lavatories and urinals.

Send for Publication No. 98 which gives detailed instructions for use.

* "Topical Aspects of Poliomyelitis" "Journal of the Royal Society of Health" Dec. 1956

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FACTORY EQUIPMENT EXHIBITION

continued from page 29

switched off, the louvres on the outside of the wall automatically close to prevent damage to fan or motor.

The Neos adjustable air diffuser (Normanton Engineers Ltd.) is, say the makers, simple to install, completely flush fitting, resistant to corrosion, fully adjustable from "open" to "shut", capable of maximum diffusion and of pleasing appearance.

Overalls. Essential features of comfort, safety and practicability are nowadays combined with fashionable lines. Sketchley Ltd. are showing some new pastel shades in women's wear for the factory. Supercraft (Garments) Ltd. will be holding mannequin parades for their latest industrial and office overall fashions.

Vending. Two tea machines on show are the same—with a difference: Perky (Frasings Ltd.) makes tea from leaf in batches of 16 cups; Parker & Dannen Ltd.'s model brews individual cups—also from leaf.

Coca-Cola Corporation are showing the Chadburn 600 vender which dispenses Coca-Cola at a rate of one cup every 12 seconds. Wistoft machines (Venders & Renters Ltd.) serve almost anything from cigarettes to nylon stockings. This company is also showing a machine for vending hot meals in factory canteens or building sites.

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20 Development of technical education in Midlands.
28 Annual General Meeting.

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26–28 Industrial and factory law.
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1–3 **Grange-over-Sands.** Northern Region conference.
4–8 **London.** Statistics in personnel management.
5–7 **London.** Employment policies and industrial relations.
22–24 **Eastbourne.** Staff Management Association conference.
31–June 5 **London.** Course for training officers.

OSMOND TURNER MEAD ASSOCIATES
4–5 Successful speaking for higher management.
25–29 Management communications for higher management.

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3–8 Development of executives.
24–June 12 Measures for management.

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4–15 Operational research.
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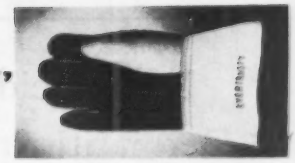

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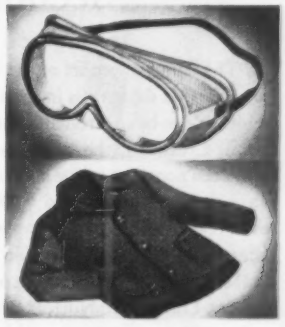

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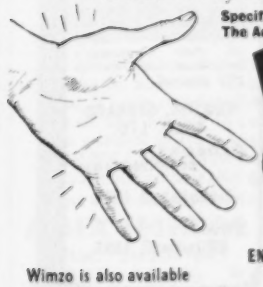

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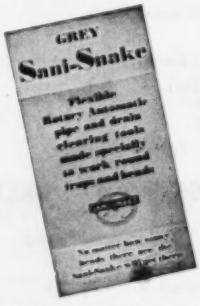

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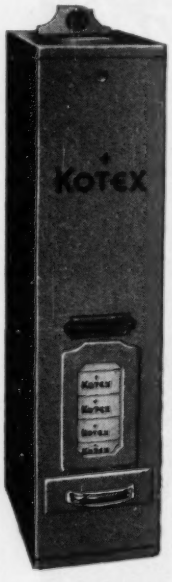

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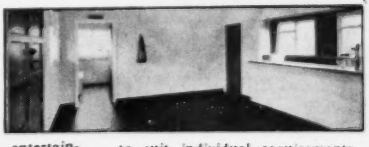

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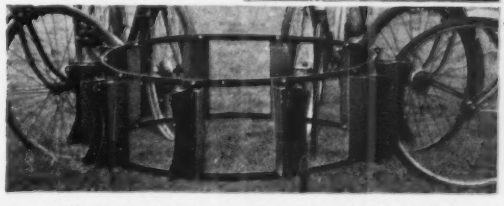

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